

responsiveness that indicates tolerance has been induced can be about 2-fold to 100-fold, preferably about 20-fold to 100-fold reduction in antibody or lymphocyte responsiveness. The range of the decrease can vary depending on the sensitivity of the assay used to measure immunological responsiveness. For example, it is known that a decrease in the number of antibody-producing cells is more sensitive than a decrease in the amount of antibody. The range of the decrease can also vary if the epitope is an immunodominant epitope. A 2-fold change in responsiveness to an immunodominant epitope can result in significant levels of tolerance to the epitope and/or an antigen containing the epitope.

A single dose of a fusion immunoglobulin can induce tolerance. In some cases, the tolerance induced by a single dose in the mouse can last from about 2 months to about 6 months. However, for tolerance to be maintained in an animal, multiple doses are typically required. Maintenance of tolerance can be desired for at least that amount of time induced by a single dose of the fusion immunoglobulin to throughout the lifetime of the animal.

A tolerogenic amount of the fusion immunoglobulin is combined with a physiological excipient such as saline, buffered saline and incomplete Freuds adjuvant. The fusion immunoglobulin can be administered by a variety of routes such as intraperitoneally, orally, and intravenously but is preferably administered by the intravenous route. The animals that can be treated to induce tolerance to allergens or auto-antigens include mice, humans, rats, rabbits and guinea pigs.

D. Methods of Identifying Epitopes That Can Serve as Tolerogens

The invention also provides methods of identifying epitopes that can serve as tolerizing epitopes.